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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,386	04/03/2002	Sharron Gaynor Penn	PB-01106	4235

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EXAMINER	
MARSCHEL, ARDIN H	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,386	PENN ET AL.	
	Examiner	Art Unit	
	Ardin Marschel	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/19/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36 and 38-129* is/are pending in the application.

4a) Of the above claim(s) *1-35 & 41-109* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36,38-40 and 110-129* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-36 and 38-129* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicants' election without traverse of Group III (previously claims 36-40) in the reply filed on 7/19/04 is acknowledged.

Applicants' election with traverse of the sequence set forth in SEQ ID NO: 13,795 in the reply filed on 7/19/04 is acknowledged. The traversal is on the ground(s) that the core set of sequences are directed to SEQ ID NOS 13,701 – 27,400. Applicants also point to genomic sequences SEQ ID NOS: 1 – 13,700 and polypeptide sequences 27,401 – 34,288. Applicants allege that these sequences are related via relationships in Tables. The other argument is that SEQ ID NO: 88 contains SEQ ID NO: 13795 as an exon therein, while SEQ ID NO: 27,454 is encoded by SEQ ID NO: 13,795. These arguments are not found persuasive because a review of the Tables reveals that a plethora of sequences from the human source organism are set forth without any relationship other than they are derived via single exon characterizations and being from a human. These minimal relationships does not overcome or even argue the basis for this requirement, set forth in the previous Office action, mailed 6/15/04, nor does it overcome the enormous undue search burden that would be required to search and analyze such a large number of sequences whose sequence characteristics which appear to be the basis of the inventions are not described via any significant relationship therein. Thus, the generic and nonspecific relationships that have been argued do not persuasively overcome the election requirement which is maintained. Also, the presence of one sequence such as SEQ ID NO: 13795 within a genome or genomic sequence such as SEQ ID NO: 88 does not support any correspondingly

similar search burden as SEQ ID NO: 88 would have to be considered as to firstly how many exons and/or genes that it encodes, whether it contains control regions such as promoters etc. outside of SEQ ID NO: 13795. These considerations alone document an undue search burden to include SEQ ID NO: 88 as an elected sequence thus supporting the maintained SEQ ID NO: 13795 election requirement. Additionally, SEQ ID NO: 27,454 is directed to a structurally distinct compound as noted in the previous office action, mailed 6/15/04, as a basis for restriction and has not been argued by applicants. Thus, applicants' arguments are not directed to the basis for this restriction requirement and thus non-persuasive.

The requirement is still deemed proper and is therefore made FINAL.

After the amending, filed 7/19/04, claims 36, 38-40, 110-129 are under examination, regarding SEQ ID NO: 13795 therein.

TITLE

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The present title is directed to probes whereas, in contrast, only single exon microarrays with probes thereon have been elected and are under examination.

CLAIM OBJECTIONS

Claims 36, 38-40, and 110-129 are objected to due to including sequence defined microarray inventions directed to non-elected and restricted inventions.

LACK OF UTILITY

The pending claims have been reviewed in light of the Utility Examination Guidelines and Guidelines for Examination of Patent Applications under 35 U.S.C. § 112, first paragraph, Federal Register, Vol. 66, No. 4, pages 1092-1111, Friday, January 5, 2001.

The examiner is using the following definitions in evaluating the claims for utility.

"Specific" - A utility that is specific to the subject matter claimed. This contrasts with a general utility that would be applicable to the broad class of the invention.

"Substantial" - A utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities.

"Credible" - Credibility is assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record that is probative of the applicant's assertions. That is, the assertion is an inherently unbelievable undertaking or involves implausible scientific principles.

"Well-established" - a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art.

35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 36, 38-40, and 110-129 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by a specific, substantial, and credible utility or, in the alternative, a well-established utility.

The claimed subject matter is not supported by a specific, substantial, and credible utility because the disclosed uses are generally applicable to broad classes of this subject matter. In addition, further characterization of the claimed subject matter would be required to identify or reasonably confirm a "real world" use. An adequate nexus has not been found between the evidence of record and the asserted properties of the claimed subject matter.

It is noted that the utility of the claimed and elected sequence is generically described in the instant specification on pages 54-71 as relating to a variety of Biotechnology usages, but none of these descriptions describe either a specific or substantial utility for the elected SEQ ID NO: 13,795. Measuring or Survey tools are described on pages 55 but without any indication as to what result is obtained via measurement or surveying with SEQ ID NO: 13,795. thus again lacking in any specific or substantial utilility which is currently available. Expression is then described as being measureable for various tissues but without any indication regarding what tissue expression relates to SEQ ID NO: 13,795 thus again lacking in specific or substantial utility description. On pages 58-62 a variety of probe or gene expression publications are cited but again without any specific or substantial utility described for SEQ ID NO: 13, 795. Selling or licensing, including over the Internet, is then described but without indicating any specific or substantial utility regarding what of patentable utility is sold or

licensed regarding SEQ ID NO: 13,795. On the bottom of page 64, lines 25-29, significant expression in tissue or cell types is cited but without indicating whether such expression is different from other tissue or cell types and also again lacking in any specificity of substantiality regarding SEQ ID NO: 13, 795. The detection of grow alterations in a genomic locus is cited on page 67, lines 4-10, but again without any specificity or substantiality since gross alterations in genomic structure does not require the specificity or substantiality of SEQ ID NO: 13,795 nor has this even been alleged. Various types of amplification methods using primers etc. are summarized on pages 68-69 as well as ORF expression, vectors, etc. Again no specific or substantial utility has therein been disclosed for any specific sequence, much less SEQ ID NO: 13,795. These reviews of large blocks of Biotechnology methods are clearly non-specific in nature and lack any substantiality also regarding any particular sequence, much less SEQ ID NO: 13,795. Thus, further research would be required to define any specific or substantial utility for SEQ ID NO: 13,795. The need for such further research to define any specific or substantial utility clearly indicates that the instant claims are directed to subject matter for which there is no currently available utility thus supporting this rejection. Note, because the claimed utility is not supported by a specific and/or substantial asserted utility for the reasons set forth above, credibility has not been assessed. Neither the specification as filed nor any art of record discloses or suggests any property or activity for the claimed nucleic acids and/or corresponding protein such that another non-asserted utility would be well established for the claimed compounds. The data in Tables 4 and 7-11 as cited in instant claims 110-115 have been reviewed

but only list SEQ ID NO: 13,795 without additionally describing any specific or substantial utility therefor.

Applicant should explicitly identify a specific, substantial, and credible utility for the claimed invention and establish a probative relation between any evidence of record and the originally disclosed properties of the claimed invention.

Claims 36, 38-40, and 110-129 are also rejected under 35 U.S.C. § 112, first paragraph. Specifically, since the claimed invention is not supported by a specific, substantial, and credible utility or a well-established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention.

NEW MATTER

Claims 110-129 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The probe characteristics listed in claims 110-129 regarding SEQ ID NO: 13,795 have not been found as filed and therefore are NEW MATTER. For example, the hybridization of SEQ ID NOL 13,795, under high stringency conditions, to a nucleic acid molecule "expressed in human brain" as in claim 110 has not been found as filed. Similarly, such hybridization regarding "human fetal liver" as in claim 111 has not been found as filed regarding SEQ ID NO: 13,795. This same type of NEW MATTER is present also in claims 112-115 and 122-127. Another set of NEW MATTER limitations

is set forth in claims 116-118 wherein specific length contiguous nucleotide sequences are required but not related to SEQ ID NO: 13,795 as filed. Yet another set of NEW MATTER limitations is set forth in claims 119, 120, and claims dependent therefrom due to citing a contiguous...that is identically contiguous to said fragment in the human genome".

Still another NEW MATTER issue is set forth in claim 121 and claims dependent therefrom regarding a probe which comprises the claim 120 probe with also comprising a sequence selected from any one of SEQ ID Nos: 1 – 13,700 as such conjugated probes have not been found regarding written basis as filed.

Lastly, the probe content as lacking specific vector or homopolymeric stretches as set forth in claims 128 and 129 have not been found as filed regarding SEQ ID NO: 13,795 and therefore also is NEW MATTER.

VAGUENESS AND INDEFINITENESS

Claims 36, 38-40, and 110-129 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 etc. cite the limitations "complement thereof" or "a fragment of". It is noted that neither of these limitations have been defined either in the claims or specification as filed. On page 17, lines 17-21, fragments of proteins are described but without any indication of what is meant regarding nucleic acid probe fragments. Complementarity reasonably includes low, medium, or high percentages of sequence complementarity such as 1 %, 10 %, 50 %, 90 %, etc. Very low complements

reasonably may hybridize to genomic or other nucleic acids without meaningful results as to what is meant thereby. Without any specific definition or meaning as to what a fragment is meant to be or a complement, the metes and bounds of such embodiments as instantly claimed are unclear. Clarification via clearer claim wording is requested.

LACK OF WRITTEN DESCRIPTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH:

Claims 36, 38-40, and 110-129 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification discloses SEQ ID NO: 13,795 which corresponds to a single exon sequence. SEQ ID NO: 13,795 meets the written description provisions of 35 USC 112, first paragraph. However, the above listed instant claims are directed to encompass gene sequences, sequences that hybridize to SEQ ID NO: 13,795; complements, and fragments. None of these sequences meet the written description provision of 35 USC § 112, first paragraph, as being single exon sequences. The specification provides insufficient written description to support the genus encompassed by the claim.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

With the exception of SEQ ID NO: 13,795; the skilled artisan cannot envision the

detailed chemical structure of the encompassed polynucleotides and/or proteins, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmacentical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

> ...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.* , 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli* , 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood* , 107 F.3d at 1572, 41 USPQ2d at 1966.

Therefore, only SEQ ID NO: 13,795 but not the full breadth of the claim meets the written description provision of 35 USC § 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC § 112 is severable from its enablement provision. (See page 1115.)

PRIOR ART

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 36, 110-116, and 119-127 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Southern (WO 89/10977).

Southern as a whole describes the immobilization of hybridization probes onto a solid support in the form of an array. The arrays disclosed therein are laid down as a matrix with small probe spots as small as 100 microns as disclosed on page 11, lines 10-29, which qualifies as a microarray due to micro-sized spots on an array disclosed therein. Microarrays with all sequences of a given length thereon are disclosed on page 8, line 3, through page 9, line 21, which is therefore inclusive of every sequence of probe as would hybridize to SEQ ID NO: 13,795 or any other sequence for that matter as required in the instant claims with 100% match with the appropriate probe sequence within SEQ ID NO: 13,795 as instantly claimed thus anticipating such embodiments of the instantly claimed and elected microarray.

INFORMALITIES

The disclosure is objected to because of the following informalities:

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. See, for example, the specification on page 32, line 27, and elsewhere. Applicants are required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Appropriate correction is required.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571) 272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 26, 2004